Vol. 104 No. 4 August 24, 1946

The American FERTILIZER

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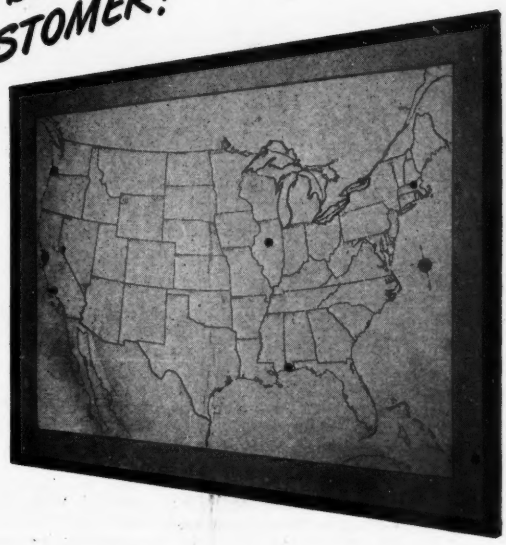

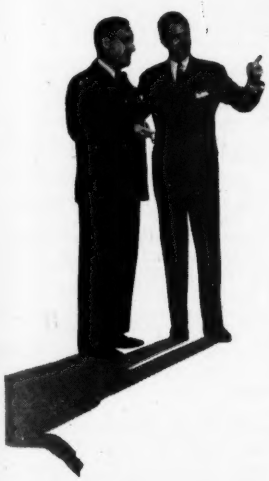

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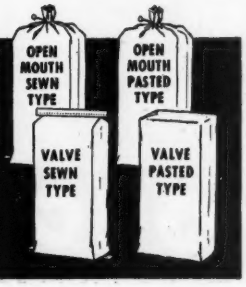

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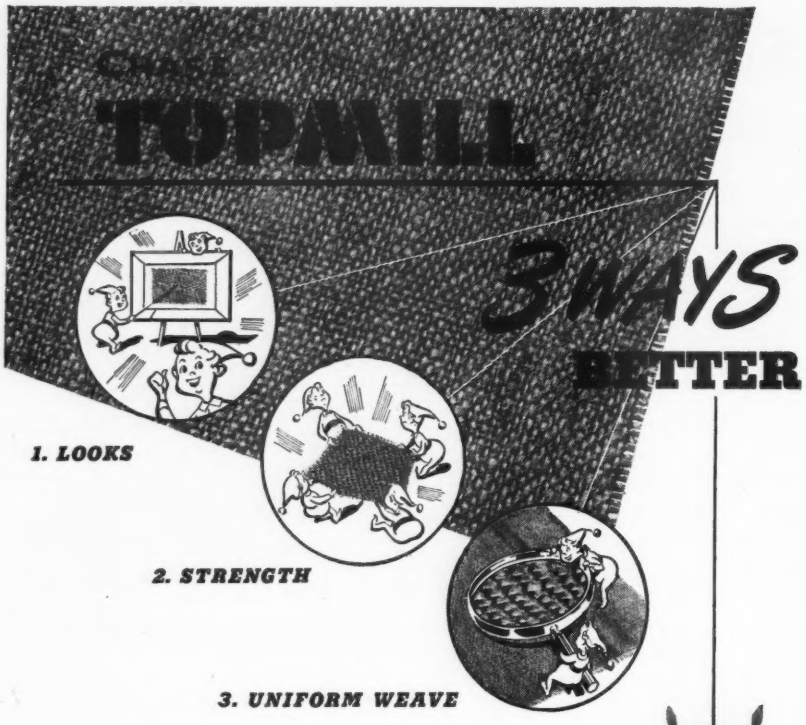

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The American FERTILIZER

Vol. 105 AUGUST 24, 1946 No. 4

Fertilizer Consumption in the United States for the Year Ended June 30, 1945

By A. L. MEHRING, HILDA M. WALLACE and WALTER SCHOLL

Division of Soils, Fertilizers, and Irrigation,
Bureau of Plant Industry, Soils, and Agricultural Engineering,
Agricultural Research Administration,
U. S. Department of Agriculture,
Beltsville, Maryland

A SURVEY was made of fertilizer and plant food consumption for the year ended June 30, 1945, by the Division of Soils, Fertilizers, and Irrigation, with the cooperation of the fertilizer manufacturers and various state officials. A full report which gives details of methods used and sources of information will be published later. This abbreviated report is offered in order to make the principal data available to the industry and public at an earlier date than would otherwise be possible.

Details on the kinds, grades, and tonnage of fertilizers sold throughout the 48 states and territories were reported by 589 manufacturers. State surveys, furnishing similar details on local consumption, were available from 27 states and Puerto Rico. The data reported herewith are believed to be practically complete.

(Tables Continued on page 8 Text on Page 26)

TABLE I
CONSUMPTION OF COMMERCIAL FERTILIZER MIXTURES AND SEPARATE MATERIALS DURING THE YEAR ENDED JUNE 30, 1945

State and Region	Commercial Mixtures			Separate Materials[1]			All Fertilizers[1]
	July 1–Dec. 31 1944	Jan. 1–June 30 1945	Year 1944–45	July 1–Dec. 31 1944	Jan. 1–June 30 1945	Year 1944–45	Year 1944–45
	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Maine	5,635	220,259	225,894	3,527	5,160	8,687	234,581
New Hampshire	591	14,407	14,998	3,623	9,899	13,522	28,520
Vermont	1,060	15,519	16,579	13,243	7,826	21,069	37,648
Massachusetts	3,789	59,834	63,623	8,969	16,665	25,634	89,257
Rhode Island	712	13,941	14,653	1,047	1,912	2,959	17,612
Connecticut	2,095	51,239	53,334	6,672	25,638	32,310	85,644
New England	13,882	375,199	389,081	37,081	67,100	104,181	493,262

[1]Includes raw rock phosphate and minor element materials, such as Borax, Manganese Sulphate, etc. Also includes fertilizers distributed by Government agencies. Does not include liming materials.

(TABLE I Continued on Page 8)

TABLE I—(Continued from page 7)

State and Region	Commercial Mixtures			Separate Materials[1]			All Fertilizers[1]
	July 1–Dec. 31 1944	Jan. 1–June 30 1945	Year 1944–45	July 1–Dec. 31 1944	Jan. 1–June 30 1945	Year 1944–45	Year 1944–45
	Tons	Tons	Tons	Tons	Tons	Tons	Tons
New York	47,233	326,323	373,556	43,510	114,863	158,373	531,929
New Jersey	31,536	195,032	226,568	7,228	15,595	22,823	249,391
Pennsylvania	110,005	280,387	390,392	48,631	59,147	107,778	498,170
Delaware	17,017	28,510	45,527	1,016	2,813	3,829	49,356
District of Columbia	308	662	970	144	223	367	1,337
Maryland	69,279	121,955	191,234	14,771	18,649	33,420	224,654
West Virginia	7,303	32,691	39,994	10,475	16,848	27,323	67,317
Middle Atlantic	282,681	985,560	1,268,241	125,775	228,138	353,913	1,622,154
Virginia	119,725	331,603	451,328	52,131	95,948	148,079	599,407
North Carolina	147,444	1,031,719	1,179,163	63,468	232,635	296,103	1,475,266
South Carolina	61,432	484,275	545,707	33,816	200,329	234,145	779,852
Georgia	54,657	675,107	729,764	63,316	209,685	273,001	1,002,765
Florida	299,235	417,325	716,560	31,857	46,932	78,789	795,349
South Atlantic	682,493	2,940,029	3,622,522	244,588	785,529	1,030,117	4,652,639
Ohio	229,312	366,833	596,145	24,009	20,112	44,121	640,266
Indiana	143,648	309,100	452,748	19,068	28,424	47,492	500,240
Illinois	33,246	112,357	145,603	158,785	182,410	341,195	486,798
Michigan	71,812	201,330	273,142	16,167	22,001	38,168	311,310
Wisconsin	24,839	162,167	187,006	21,187	29,481	50,668	237,674
East North Central	502,857	1,151,787	1,654,644	239,216	282,428	521,644	2,176,288
Minnesota	6,810	50,010	56,820	19,902	18,722	38,624	95,444
Iowa	10,660	64,114	74,774	20,047	47,755	67,802	142,576
Missouri	29,271	53,117	82,388	42,993	41,371	84,364	166,752
North Dakota	1,195	2,682	3,877	1,206	1,729	2,935	6,812
South Dakota	91	214	305	60	221	281	586
Nebraska	183	342	525	829	2,100	2,929	3,454
Kansas	4,314	3,178	7,492	27,071	12,078	39,149	46,641
West North Central	52,524	173,657	226,181	112,108	123,976	236,084	462,265
Kentucky	22,585	157,306	179,891	50,180	87,401	137,581	317,472
Tennessee	28,448	159,259	187,707	49,861	104,246	154,107	341,814
Alabama	21,129	472,250	493,379	117,840	201,459	319,299	812,678
Mississippi	11,640	204,155	215,795	81,550	199,666	281,216	497,011
Arkansas	2,649	68,249	70,898	33,330	47,279	80,609	151,507
Louisiana	13,842	88,401	102,243	24,462	84,651	109,113	211,356
Oklahoma	1,200	10,206	11,406	5,476	5,699	11,175	22,581
Texas	12,166	147,595	159,761	34,789	39,816	74,605	234,366
South Central	113,659	1,307,421	1,421,080	397,488	770,217	1,167,705	2,588,785
Montana	261	950	1,211	2,539	5,493	8,032	9,243
Idaho	692	4,899	5,591	11,273	27,648	38,921	44,512
Wyoming	6	71	77	806	3,006	3,812	3,889
Colorado	930	2,646	3,576	3,620	9,495	13,115	16,691
New Mexico	310	969	1,279	5,378	6,256	11,634	12,913
Arizona	2,966	3,297	6,263	13,302	15,914	29,216	35,479
Utah	188	397	585	5,453	6,612	12,065	12,650
Nevada	39	386	425	24	4	28	453
Washington	7,650	22,668	30,318	17,966	28,183	46,149	76,467
Oregon	3,539	13,393	16,932	14,571	18,601	33,172	50,104
California	87,933	134,605	222,538	369,875	351,122	720,997	943,535
Western	104,514	184,281	288,795	444,807	472,334	917,141	1,205,936
Hawaii	17,203	20,999	38,202	22,321	30,027	52,348	90,550
Puerto Rico	80,045	76,984	157,029	13,283	3,838	17,121	174,150
Noncontiguous Territories	97,248	97,983	195,231	35,604	33,865	69,469	264,700
Continental U. S.	1,752,610	7,117,934	8,870,544	1,601,063	2,729,722	4,330,785	13,201,329
Total	1,849,858	7,215,917	9,065,775	1,636,667	2,763,587	4,400,254	13,466,029

TABLE II

PRINCIPAL FERTILIZER GRADES CONSUMED IN THE UNITED STATES AND ITS REGIONS, DURING YEAR ENDED JUNE 30, 1945

Grade	Consumption	Proportion of Region Total
	Tons	Per cent
New England		
5-10-10	64,050	16.5
6- 9-15	55,309	14.2
5- 7-10	54,888	14.1
5- 8- 7	44,506	11.4
8-12-16	29,387	7.6
6- 9-12	25,618	6.6
8-12-20	20,366	5.2
6- 3- 6	19,664	5.0
7- 7- 7	12,746	3.3
5-10-15	12,189	3.1
10 Grades	338,723	87.0
Middle Atlantic		
3-12- 6	397,497	31.3
5-10- 5	231,091	18.2
5-10-10	199,542	15.7
4-12- 8	103,992	8.2
4- 8-12	89,993	7.1
4-12- 4	74,346	5.9
0-14- 7	29,841	2.4
3- 9-12	27,685	2.2
0-12-12	21,387	1.7
6- 8- 6	17,239	1.4
10 Grades	1,192,613	94.1
South Atlantic		
3- 9- 6	488,230	13.5
4-10- 6	425,726	11.8
4- 8- 6	425,108	11.7
3-12- 6	320,080	8.8
3- 8- 5	262,356	7.2
3- 9- 9	194,570	5.4
4- 8- 8	156,011	4.3
5-10- 5	143,939	4.0
5- 7- 5	143,834	4.0
4- 6- 8	128,594	3.6
10 Grades	2,688,448	74.3
East North Central		
2-12- 6	890,440	53.8
3-12-12	256,304	15.5
0-12-12	160,598	9.7
0-14- 7	71,657	4.3
3-18- 9	41,199	2.5
3- 9-18	40,434	2.4
0- 9-27	37,523	2.3
4-12- 8	29,257	1.8
0-20-20	22,189	1.3
8- 8- 8	21,469	1.3
10 Grades	1,571,070	94.9
West North Central		
2-12- 6	115,730	51.2
3-12-12	24,643	10.9
0-14- 7	18,755	8.3
4-12- 4	16,256	7.2
0-12-12	13,572	6.0
0- 9-27	6,671	3.0
3- 9-18	5,970	2.6
4-24-12	5,054	2.2
4-12- 8	4,334	1.9
0-20-10	2,737	1.2
10 Grades	213,722	94.5
South Central		
6- 8- 4	349,858	24.6
4-10- 7	209,479	14.7
4-12- 4	157,957	11.1
5-10- 5	114,549	8.1
3- 9- 6	102,250	7.2
4- 8- 8	99,603	7.0
2-12- 6	99,440	7.0
4-10- 4	62,704	4.4
6- 8- 8	58,573	4.1
0-14- 7	36,047	2.5
10 Grades	1,290,460	90.7
Western		
8- 8- 4	46,725	16.2
10-10- 5	32,248	11.2
6-10- 4	28,815	10.0
6- 9- 6	16,253	5.6
17- 7- 0	15,488	5.4
8-10-12	10,215	3.5
3-10-10	9,818	3.4
4-10-10	8,875	3.1
4-12- 4	7,828	2.7
10-20- 0	6,073	2.1
10 Grades	182,338	63.2
Continental U. S.		
2-12- 6	1,194,382	13.5
3-12- 6	720,565	8.1
3- 9- 6	590,514	6.7
5-10- 5	504,880	5.7
4-10- 6	429,461	4.9
4- 8- 6	425,408	4.8
4-12- 4	357,787	4.0
6- 8- 4	354,908	3.9
5-10-10	285,915	3.2
3-12-12	285,123	3.2
3- 8- 5	262,611	3.0
4- 8- 8	255,618	2.9
0-12-12	240,762	2.7
4-10- 7	219,566	2.5
3- 9- 9	194,749	2.2
0-14- 7	191,004	2.1
4-12- 8	164,286	1.9
6- 8- 6	161,660	1.8
5- 7- 5	143,834	1.6
4- 6- 8	129,282	1.5
4- 7- 5	102,361	1.2
4- 8-12	92,514	1.0
4- 9- 3	79,908	0.9
4-10- 4	68,805	0.8
24 Grades	7,455,903	84.1

(Continued on Page 26)

1946-1947 Fertilizer Supplies for the United States

The U. S. Department of Agriculture has announced the quantities of fertilizer materials which are expected to be available to farmers of the United States, including Puerto Rico and Hawaii, during the 1946–47 fertilizer year. These quantities are in line with recommendations recently made by the Combined Food Board (now replaced by the International Emergency Food Council), which were designed to result in as equitable a division as possible of available supplies.

In spite of increased production of fertilizer materials in many countries, the world shortage is so severe that the problem of obtaining a fair distribution has been even more difficult than during the war years. Estimated world requirements for nitrogen exceed world supplies by nearly 1,000,000 tons(N), or approximately 25 per cent. Estimated world requirements exceed supplies by 16 per cent in the case of phosphate rock and by 32 per cent in the case of soluble phosphates. For potash, approximate balance can be achieved between world requirements and supplies only if exports from Germany reach prewar levels.

The U. S. production of fertilizer materials is expected to be maintained at the peak war level, with perhaps some increase. On a plant food basis this is nearly double the average annual quantity used during the period 1935–39. Supplies available for consumption, taking imports and exports into account, are expected at least to equal the record quantities used during the year ending June 30, 1946.

Nitrogen

Domestic production of nitrogen will total about 577,000 tons (N). Imports are expected to total 201,000 tons (N), mostly from Canada and Chile, and a small quantity is scheduled to come from Norway. Exports of nitrogen are expected to total about 97,000 tons (N).

The over-all supply of nitrogen for agricultural use in the United States and possessions during 1946–47 is 681,000 tons (N), which is approximately the same as was available during the past year. This is nearly twice the average consumption in 1935–39.

The 97,000 tons of nitrogen for export include Canada, 550 tons; Latin American Republics, 5,500 tons; France and colonies, 19,600 tons; Finland, 2,200 tons; Netherlands, 22,550 tons; Netherlands East Indies, 2,200 tons, Philippines, 3,000 tons; and UNRRA countries, 41,360 tons.

Thus far, imports actually scheduled from Chile cover only the period July–December 1946 and amount to about one-third of expected imports from this source during the full year.

The above figures do not include nitrogen fertilizer which the War Department will produce in U. S. Ordnance plants, now idle, for use in Japan, South Korea, and the U. S. Zone in Germany to prevent disease and unrest. The War Department has made arrangements to draw on U. S. production during July-December 1946 for shipments to occupied areas but will return an equal quantity in the first four months of 1947.

Phosphate Rock

From an estimated domestic supply of 6,049,000 long tons, the U. S. will retain 5,500,000 tons to meet domestic requirements and will supply the following quantities for export: Canada, 330,000 tons; Australia and New Zealand, 38,000 tons; Netherlands, 25,000 tons; Belgium, 50,000 tons; Sweden, 50,000 tons; Mexico, 6,000 tons; Japan and Korea, 50,000 tons. These exports total 549,000 tons, less than 10 per cent of the U. S. production of phosphate rock. In prewar years about one-third of the U. S. phosphate rock production was exported.

Soluble Phosphates

The U. S. will utilize 1,500,000 short tons (P_2O_5)from domestic production. Exports to Canada will amount to some 26,000 tons (P_2O_5) and imports from Canada will be around 27,000 tons. Exports listed for other countries are: Iceland, 196 tons; British West Indies, 646 tons; Kenya, 1,253 tons; Philippines, 1,647 tons; UNRRA Pacific Area, 5,500 tons; Latin American Republics, 21,000 tons. The 1,500,000 tons (P_2O_5) estimated to be available for the U. S. in 1946–47 compares with an average annual consumption during 1935–39 of 720,000 tons and is about 8 per cent larger than the record quantity used during the past year.

Potash

In the case of potash, the U. S. will have available from its own production for domestic use approximately 745,000 short tons (K_2O). This supply is slightly more than was available during the past year and is about twice the average annual consumption of 375,000 tons during 1935–39. If German supplies once more become available in world commerce,

it is expected that an additional 55,000 tons (K_2O) will be obtained from that source during 1946–47. Meanwhile the United States will export to nearby countries quantities of potash in line with those which have been supplied in other recent years. These are as follows; Canada, 41,000 short tons (K_2O); Latin American Republics, 10,600 tons; British West Indies, 2,800 tons; Iceland, 496 tons; Philippines, 236 tons; New Zealand 1,681 tons.

In addition to these arrangements, discussions are under way with France whereby some 25,000 metric tons (K_2O) may become available from that country, either for direct shipment to occupation authorities in Japan or for delivery in the United States to enable release to Japan of a like quantity of material produced in the United States.

North Carolina Official Grades for 1946-1947

On July 25th, the North Carolina Board of Agriculture, upon recommendation and approval of the Director of the Agricultural Experiment Station, adopted a list of 25 official grades of mixed fertilizers which may be sold in the State during the 1946–1947 seasons. The official grades are as follows:

For General Crops

14–0–14	4–12–8	3–9–9
10–0–30	4–12–4	2–12–12
10–0–10	4–10–6	0–14–7
7–7–7	4–8–8	0–12–12
6–8–6	3–12–6	0–10–20
6–6–12	3–9–12	0–9–27
5–10–5		

For Tobacco Only

6–9–3	4–9–3	3–8–5
5–5–20	3–9–6	2–10–6
	3–9–9	

In the 6–9–3 and 4–9–3 tobacco grades, a maximum chlorine content of ½ per cent is permitted; in the 5–5–20 grade, a maximum of 5 per cent; in the other tobacco grades, a maximum of 3 per cent.

Potential basicity and acidity—The following grades of fertilizer must be registered and guaranteed to be non-acid forming:

2–10–6	2–12–12	3–9–6	4–10–6
4–9–3	3–9–12	4–8–8	3–12–6
3–9–9	3–8–5	5–5–20	

The following grades of fertilizer must be registered and guaranteed not to exceed 200 pounds potential acidity per ton:

6–9–3	7–7–7	4–12–8
4–12–4	5–10–5	
6–8–6	6–6–12	

The grade 0–12–12 must be registered and guaranteed to contain not less than 300 pounds potential basicity per ton.

Any grade of mixed fertilizer may be registered and sold with an acid-forming guarantee in special cases when the farmer may have had his soil tested by the Soil Testing Division of the North Carolina Department of Agriculture and acid forming fertilizers are recommended.

Small packages of fertilizer or fertilizer materials weighing five pounds net or less and having a minimum of 20 units of plant food may be registered and sold as a speciality grade provided the grade analysis is shown on each package.

When limestone or dolomite is used in a fertilizer or fertilizer material, the limestone or dolomite shall be crushed or ground to such a degree of fineness that all the material will pass through a 10-mesh screen and not less than 50 per cent of the material will pass through a 50 mesh-screen.

WFO-9 to Control Oilseed Meals for Fertilizers

War Food Order 105, Amendment 1, which has controlled the acquiring of oilseed meals for fertilizer purposes during the period July 1, 1945, to June 30, 1946, was terminated on August 5th by the Department of Agriculture, but restrictions upon the acquisition or use of edible oilseed meals for fertilizer purposes during the 1946–47 season were provided in an amendment to War Food Order 9.

The continued tight supply of protein meals for feeding purposes requires continued restrictions on the quantity of edible oilseed meals which can be used for fertilizers and the prohibition of delivery or receipt of such meals for fertilizer prior to September 1, 1946, as provided in the amendment to War Food Order 9. The amendment does not, however, forbid the making of contracts prior to Septemper 1, 1946, for the delivery of edible oilseed meal for fertilizer purposes after that date.

Certificates are required by War Food Order No. 9 With respect to all deliveries of edible oilseed meal for fertilizer purposes. The Order No. 9 also directs that edible oilseed meal acquired for use as fertilizer be used in areas and on crops where such meals had previously been used.

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New Retail Fertilizer Ceilings

Maximum prices for sales of superphosphate and of mixed fertilizers by fertilizer manufacturers to farmers and to dealers have been increased from 6 to 11 per cent to reflect the increased cost of superphosphate and the recent freight rate increases, the Office of Price Administration announced on August 9th. The new prices are contained in Amendment 6 to Second Revised Maximum Price Regulation 135.

Under this action, effective August 9, 1946, mixed fertilizer ceilings will reflect superphosphate cost increases ranging from 65 cents to $1.30 per ton plus the additional cost of freight. Retail prices will be increased on bagged superphosphate $1 per ton plus the added freight.

These increases in retail ceilings of fertilizers are the first granted since the spring of 1943.

In commenting on the revision of ceilings, Maurice H. Lockwood, president of the National Fertilizer Association, has made the following statement:

"OPA officials explain that increases in maximum prices provided for by Amendment 6 reflect recent tangible increases in the fertilizer manufacturer's costs, such as the increase in freight rates llowed by the Interstate Commerce Commission and the increased cost of superphosphate. They point out that it is possible to arrive at figures which will be practically correct for such increases. The percentage of the retail price of fertilizer represented by freight has been carefully estimated and a definite percentage increase of such amount may be computed. Similarly, the increase in the cost of superphosphate is a definite amount per unit of P_2O_5, and the increased superphosphate cost for any grade of fertilizer may also be computed.

"Certain other increases, referred to as intangible cost increases, have not been taken into consideration in establishing the new retail prices. Officials point out that they have insufficient data on which to determine retail price increases which would reflect cost increases of this kind. For instance, the proportion of ammonium sulphate used by different manufacturers in making mixtures vary widely, and the officials lack data which they feel would justify them now in determining the amount of any increase in the price of mixed fertilizers based on the increased cost of ammonium sulphate. Practice as to the

use of organics varies even more widely. As another illustration, they lack sufficient information as to increase in labor costs in making mixed fertilizer. OPA seems to be looking for guidance, based on facts, as to the intangibles. Fertilizer manufacturers apparently may expect open-minded consideration of any factually supported data they may present tending to show that any requested price increases are justified by cost increases and are necessary to justify and continue the present quality of goods.

"It should be borne in mind, of course, that under the present pricing arrangement any price increase would probably be on an industry basis, by areas, rather than on an individual manufacturer basis.

OPA officials advise that in the future any additional maximum price increases will be made only upon recommendation of its industry advisory committees, and that such recommendations must be supported by factual data. Any increases based upon any of the intangible cost increases, for instance, would have to be handled in this way. Any fertilizer manufacturer who may wish to present any such matter for consideration by OPA should get in touch with the chairman or any other member of the appropriate fertilizer or superphosphate advisory committee."

Heyden to Operate U. S. Ammonia Plant

The Heyden Chemical Corporation, New York, has been requested by the War Department to operate a chemical plant at Morgantown, W. Va., for the production of anhydrous ammonia needed to help meet the world fertilizer shortage, Bernard R. Armour, Heyden president, announced recently in a letter to stockholders. The company has agreed to the request on the basis of a cost-plus-fixed-fee contract, the terms of which are under negotiation.

How Much Fertilizers can Potatoes Utilize?

In the 58th Annual Report of the South Carolina Experimental Station this statement is made: "All experiments conducted by this station have indicated that in most seasons 1,500 pounds per acre of a 5-10-5 is all that the crop can utilize. Under ideal conditions 2,000 pounds per acre could be utilized."

Obituary

John W. Wizeman

John W. Wizeman, chief of the Inorganics Branch, Chemicals Civilian Production Administration, died suddenly from a cerebral hemorrhage at his home in Arlington, Va., on August 15th. He was 51 years of age.

A native of New York City, Mr. Wizeman entered government service in 1924, in the Chemical Division, Bureau of Foreign and Domestic Commerce, where he served for 17 years. In 1941 he was appointed chief of the Inorganic Chemicals Branch of WPB and throughout the war had general supervision over the allocation of fertilizer materials and equipment priorities. When WPB was discontinued at the end of the war, he was transferred to CPA.

In his official position he was known to every fertilizer manufacturer, and his fairness and ability to grasp the industry's problems contributed greatly to the splendid record of fertilizer production and distribution during the war. In his contacts with the Industry Advisory Committee and at the various meetings and conventions of the industry, he made a great number of friends, who sincerely mourn his untimely death.

He is survived by his wife, Marguerite and by one son, John W. Wizeman, Jr.

Noel E. Harman

Noel E. Harman, Treasurer and General Manager of the Meridian Fertilizer Factory, Hattiesburg, Miss., died on August 13th at New Orleans. He had been connected with the company for more than 25 years. An active participant in industry affairs, he was a regular attendant at the meetings on the National Fertilizer Association, and for many years was a member of the Board of Directors of that body.

July Fertilizer Tag Sales

Fertilizer tax tag sales totaled 368,000 equivalent tons in July and were 51 per cent greater than those reported a year ago, according to the compilation of The National Fertilizer Association. Nine of the eleven Southern States were higher than a year ago and the decrease in the other two States, Virginia and Georgia, was relatively small. Each of the Midwestern States showed substantial increases. Kansas sales jumped almost five times over July 1945 and Missouri sales were more than three times greater. The increase in July was even more pronounced when compared with July two years ago; sales were 2½ times greater in the South and almo t twice as large in the Midwest.

In the first seven months of the calendar year, January-July, tag sales totaled 6,308,000 equivalent tons in the sixteen reporting States and were 641,000 tons, or 11 per cent above the sales in the corresponding period a year ago and 22 per cent above two years ago. Sales in the South were 9 per cent larger than a year ago with increases reported in each of the eleven States. Increases ranging from 1 per cent to 10 per cent were shown in Virginia, North Carolina, South Carolina, Georgia, Tennessee and Louisiana; increases ranging from 10 per cent to 20 per cent were reported in Florida, Alabama and Arkansas; while Texas sales were 45 per cent higher and Oklahoma 100 per cent higher than a year ago.

January-July tag sales in the Midwest were 27 per cent greater than for the same period a year ago with Missouri showing the largest percentage gain. Substantial increases were also reported in Kansas, Indiana and Illinois, with a smaller percentage increase being reported for Kentucky.

FERTILIZER TAX TAG SALES
Compiled by The National Fertilizer Association

	July				January–July		
	1946	1945	1944	Per Cent	1946	1945	1944
	Tons	Tons	Tons	of 1945	Tons	Tons	Tons
Virginia	24,299	27,152	12,547	109	453,995	414,614	341,493
N. Carolina	25,438	7,750	2,700	104	1,205,586	1,155,132	1,053,361
S. Carolina	21,118	12,440	1,850	101	674,561	666,465	619,973
Georgia	15,100	15,503	15,668	103	918,948	893,328	854,116
Florida	52,773	44,568	30,004	118	571,726	486,519	482,515
Alabama	22,750	12,500	4,100	113	700,500	617,800	547,200
Tennessee	16,770	5,326	4,775	108	246,425	227,735	203,266
Arkansas	9,550	8,250	4,000	119	126,100	106,400	101,983
Louisiana	6,302	3,050	790	106	136,613	129,386	133,670
Texas	11,719	3,700	5,165	145	216,801	149,785	140,541
Oklahoma	2,500	0	900	200	32,798	16,412	12,051
Total South	208,319	140,239	82,499	109	5,284,053	4,884,053	4,491,169
Indiana	95,925	74,705	58,332	128	386,658	303,194	269,161
Illinois	22,975	11,350	10,810	123	188,483	153,539	107,290
Kentucky	10,600	9,450	4,436	106	240,961	227,633	186,521
Missouri	14,718	4,785	5,135	184	174,471	94,783	80,304
Kansas	15,000	3,140	4,745	138	33,227	24,005	28,246
Total Midwest	159,218	103,430	83,458	127	1,023,800	803,154	671,522
Grand Total	367,537	243,669	165,957	111	6,307,853	5,666,730	5,162,691

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FERTILIZER MATERIALS MARKET

NEW YORK

Demands for Materials Above Normal. Allocation of Some Materials Delayed. Shortage of Boxcars Hampers Shipments. Few Imports of Fertilizer Materials Reported. Organics Back on Ceiling Prices but no Offerings Reported.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, August 17, 1946.

Demand from the consuming areas for all fertilizer materials continues to be above normal for this time of the year. The delay in making potash allocations and the still undertermined question of sulphate of ammonia allocations for the new season has retarded contracting for the available supplies of these materials for the coming fertilizer year. Shipping schedules of some producers of basic ingredients have been disrupted due to the continuing shortage of boxcars. This shortage is largely attributed to the current heavy movement of grains.

Available supplies of organic materials remain very scarce in spite of the fact that buyers in the feed industry are reluctant to take these materials at the recent high price levels.

Except for regular shipments from Chile and Canada, imports of fertilizer materials have been practically negligible. There has been a recent heavy call for superphosphate from Latin America but much of this demand remains unfilled due to the tight situation domestically.

Sulphate of Ammonia

Supplies remain tight with practically no inventory stocks and the forward position remains indefinite with the possibility of government allocation. Talk of large exports through government channels lends further speculation as to the supplies that will be abailable to the fertilizer industry over the next year's period.

Nitrate of Soda

Stocks at port remain small, but a shipment is expected in this area shortly. Domestic distribution for the new period will probably be made on about the same basis as last year, and it is not expected that this country will receive more than 700,000 tons of imported material.

Organic Materials

Production of castor pomace has been cut by labor trouble at two of the larger plants, and consequently, no offerings have been reported in the market at this time. There has been a considerable amount of animal by-products offered to this market from South America during the past week, but prices asked continue to be out of line for fertilizer buyers. Fish scrap and fish meal have been put back under the former ceiling prices and the result has been a cutback in fishing operations.

Superphoshpate

All supplies available continue to be taken on the new price basis. Domestic production remains at record-high levels.

Phosphate Rock

All major producers are completely sold up and both foreign and domestic inquiry continue heavy. Substantial gains are being made in North African production, but there does not seem to be a possibility of acidulators in this country obtaining supplies from that source in the near future.

Potash

The Department of Agriculture reports that the U. S. will have slightly more potash available for the fertilizer industry this year than in 1945. If and when German supplies become available, the supply position will be eased accordingly. Allocations for export have been recently announced showing major tonnages for Canada and Latin American countries.

Sulphur

Production of sulphur in this country is continuing at about 300,000 tons per month. Output for the first six months was the highest for any similar period since 1940. Stocks on hand at the end of June were almost 4,000,000 tons.

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CHARLESTON

Organics Producers Awaiting OPA Action on Ceilings. Sulphate of Ammonia Tight. Superphosphate Production Hampered.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON S. C., August 19, 1946.

Demand for all fertilizer materials remains strong with prospect of insufficient supply especially in organics to meet the expected increased call for mixed fertilizers by the consumers.

Organics.—South American packing-house organics remain higher than the domestic market. Domestic packing-house materials are steadily weakening in price as the 21st of August approaches, as buyers do not want to be stocked up on materials at prices above the old CPA ceilings which might be reinstated at former levels. Producers of nitrogenous fertilizer tankage are still selling at OPA ceilings but with considerably reduced production. Supply is far below demand. Castor pomace demand remains in excess of supply with price at old OPA level of $3.15 (3.83 per unit N). Some had been sold at $6.00 (7.29½ per unit N), during the OPA holiday. Two major producing plants are on strike. Organics in general remain scarce.

Bone Meal—Practically no offerings for fertilizer use. 1 and 65 per cent grade quoted nominally at $65.00 Chicago.

Blood.—South American still above domestic levels. Domestic sold at around $8.75 per unit of ammonia ($10.63 per unit N) f.o.b. New York, $8.00 to $8.50 (9.72 to $10.33 per unit N) at Chicago. Uncertainty as to action of OPA on August 21st weakens market daily.

Fish Scrap.—Production still off. Market back to former ceiling basis of $1.21 unit of protein or $6.22 unit of ammonia ($7.56 per unit N) Demand far greater than supply.

Nitrate of Soda.—Demand is still strong and imported stocks are low. Prices remain no higher than last increase allowed by OPA.

Sulphate of Ammonia.—Domestic demand stays right in behind supply and, with the export program in view, the supply available for the coming season is expected to be rather tight. Bagged sulphate, delivered Western points, ranges in price from $31.50 to $42.60 depending on delivery point. OPA ceiling at producing mill is now $30.00 per ton, bulk.

Superphosphate.—New contracts are being written at the new OPA ceilings with demand still strong. Shortage of sulphuric acid, due to strikes in several large sulphuric acid plants, and the general tightness of phosphate rock supply is affecting production of superphosphate adversely.

Phosphate Rock.—General tightness in supply with domestic and export demand very active.

PHILADELPHIA

Demand for Mixed Fertilizers Higher than Usual. No Improvements in Materials Situation. Allocations Expected.

Exclusive Corrgspondence to "The American Fertilizer"

PHILADEKPHIA, August 19, 1946.

The demand for mixed fertilizers is much more above normal for this time of the year, and consequently there is an abnormal demand for raw materials. It is said that sales of mixed fertilizers in July were more than 50 per cent over the same period last year. All materials are in tight supply position and the general situation is really worse than during the war. And there is no improvement in the organic situation. It is estimated the world supply of nitrogen will fall probably 25 per cent short of the requirements.

Sulphate of Ammonia.—While we have seen no formal notice that this has been placed under allocation, it really is so far as

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many of the mixers are concerned. Demand exceeds the present supply and accumulation of inventories is out of the question.

Nitrate of Soda.—Price advance has been previously reported. Consumers demand is above the average for this time of the year. Stocks are short, and there is no general easting of the supply position in prospect. It is suggested that about the same plan of distribution will be followed as last year, but it is thought that the supply in any event will not equal more than about 70 to 80 per cent of this country's requirements. Production of domestic is further hampered by shortage of freight cars for soda ash shipments.

Castor Pomace.—There are no offerings and no business is reported. Several plants are shut down because of strikes.

Blood, Tankage, Bone.—These are now really feed materials and consequently command higher prices than the fertilizer man can pay. However, there is indication that the recent high level created by these feed people will not be maintained, and $8.00 to $8.50 per unit of ammonia ($9.72 to $10.33 per unit N) for blood and high grade tankage seems to be amply high.

Fish Scrap.—With the ceiling restored, the supply seems to have dwindled. However, some shipments are coming through, based on the OPA ceiling.

Phosphate Rock.—The market position is very tight, and demand exceeds the ability to supply.

Superphosphate.—Recent price advance has already been reported. The demand is abnormal for this time of the year and supplies are short.

Potash.—There is also unseasonable demand for this material and, while shipments are short of present requirements, it is hoped that Germany may reach her prewar level, in which event the U. S. could expect to import something over 50,000 tons K_2O from there.

CHICAGO

Prices Nominal, Based on Old Ceilings. Out of Fertilizer Range.

CHICAGO, August 19, 1946.

Rumors of small trades in organics at higher than old ceiling prices were circulated; but while no quantities are now offered, nominal prices are based on old ceilings.

These prices, after wide variations, are now at $100.00 to $105.00 per ton for tankage and meat scraps.

CASE HISTORY No. 7

One in a series of factual experiences of a group of American manufacturers with Multiwall Paper Bags.

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Total bag and labor cost per 50 lbs.	.142	.093
Saving per bag paper over burlap		.049
Saving per ton paper over burlap		1.96

DETAILS OF LABOR COSTS

	Production per Hour	Cost per 50 lbs.
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1 man filling, weighing, closing and handling at 80¢ per hour	3000 lbs.	.013
Multiwall Paper Valve Bags		
1 man filling and handling at 80¢ per hour	6000 lbs.	.007

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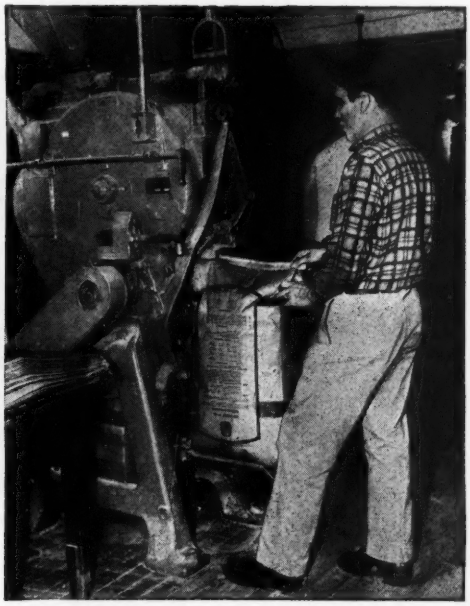

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August Report Shows Better Crop Prospects

Almost without exception, the August 1st report of the U. S. Crop Reporting Board showed better crops in prospect than was the case in the July report. This improved outlook reflects almost ideal conditions for maturing and harvesting of grains in practically all areas during July.

A corn crop of almost 3½ billion bushels is predicted, while the wheat crop promises 1,160,000 bushels compared with the 1935–44 average of 844,000,000 bushels. Other banner crops include oats, 1½ billion bushels; peanuts, 2 billion pounds; potatoes, 445 million bushels; tobacco, 2,163 million pounds; sugar beets, 11,205,000 tons.

A cotton crop of 9,290,000 bales is in prospect, compared with 9,015 bales in 1945. This is still far below the 1935–44 average of 12, 553 bales.

International Enlarging Iowa Plant

To help meet the expanding demands for fertilizer in the middle west, International Minerals and Chemical Corporation is starting construction of an acidulating unit and addition to its Mason City, Iowa, plant which will about triple its size when completed. Total cost of the project will approximate $150,000 according to Louis Ware, president of the corporation.

The Civilian Production Administration has granted approval to increase the size of the plant from 20,000 to 56,000 sq. ft. of floor space. The original plant was constructed last year and has only been in operation since last spring.

With the addition of the acidulating unit, the Mason City plant will be capable of producing its own superphosphate which it currently obtains from International's plant in Chicago Heights, Illinois. When completed, the enlarged structure at Mason City will house a complete fertilizer plant for the production of the finished product for shipment to the users. It is expected to be in full operation early in 1947.

According to Harry B. Baylor, vice-president in charge of International's plant food division, farmers in the middle west are finding it increasingly necessary—under the pressure to grow more food—to step up their use of fertilizers for more economical and efficient crop production. The Mason City plant was specifically constructed, as a result, to serve International's customers in Iowa, Minnesota, Wisconsin, and northern Michigan.

Cotton Loan Rates Increase

The U. S. Department of Agriculture has announced loan rates for the 1946 cotton crop. The new rates for ⅞ inch middling cotton will average 22.83 cents per pound which is 92½ per cent of the August 1st parity price of 24.68 cents per pound. Last year the average loan rate was 19.84 cents per pound. For 15/16-inch middling cotton, the average rate will be 24.38 cents per pound.

The loan rates vary slightly according to location, the rate for 15/16-inch running from a high of 24.94 cents in the Carolinas to 23.69 cents in Arizona and California.

On American-Egyptian cotton (grade No. 2, 1½ inches) the rate will be 49.45 cents per pound in Arizona and California and 49.70 cents per pound in New Mexico and West Texas. On other grades the rates vary from 51.80 cents for grade No. 1, 1½ inch or longer to 19.70 cents for grade No. 5, 1⅜ inch.

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International's new Noralyn Mine, now under construction near Bartow, Florida, is designed to produce one million tons of highest grade Phosphate Rock per year when it begins operations in 1947.

An engineering project unique in the industry's experience, the Noralyn Mine is dedicated to the urgent task of producing larger quantities of essential Phosphates to meet the greatly expanded needs of industry and agriculture in America and throughout the world.

Many important metallurgical innovations have been developed by International's engineers for use in the Noralyn Mine which will be the largest phosphate mining operation in the country. Through its research and engineering development program, International has continually improved its processes of mining and refining Phosphate Rock to expand production for increasing market requirements.

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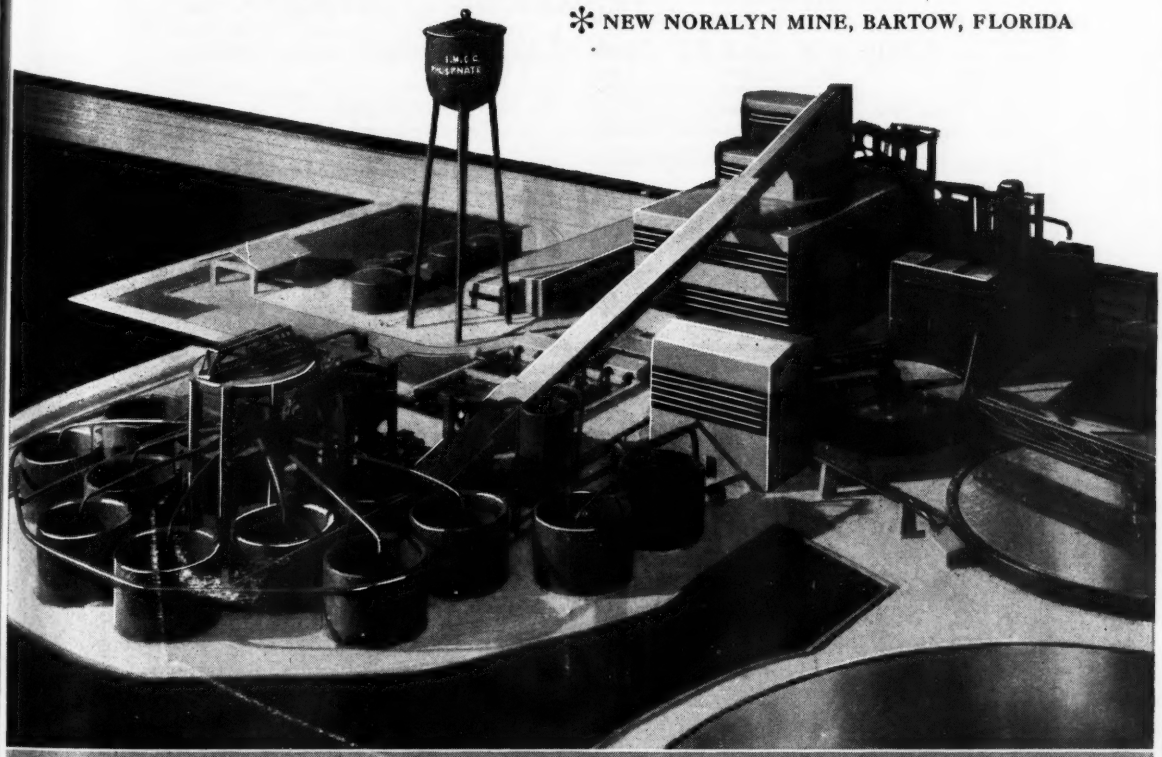

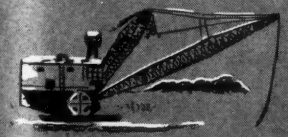

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June Sulphate of Ammonia Production Rises

The June figures for the production of by-product sulphate of ammonia showed an encouraging increase of 70 per cent over May, according to the U. S. Bureau of Mines, but the output is still about 10,000 tons per month under the peak levels maintained during the war. For the first six months of the year, production was one-third less than in the same period of 1945. Sales during June increased only 45 per cent over those of May, and as a result, stocks on hand at the end of the month had risen to 25,356 tons.

	Sulphate of Ammonia Tons	Ammonia Liquor Tons NH_3
Production		
June, 1946	54,040	1,869
May, 1946	31,859	1,466
June, 1945	64,053	2,281
January–June, 1946	265,906	11,392
January–June, 1945	398,132	14,231
Sales		
June, 1946	44,538	1,624
May, 1946	30,553	1,377
June, 1945	61,847	2,128
January–June, 1946	272,503	10,844
January–June, 1945	442,417	13,539
Stocks on Hand		
June 30, 1946	25,356	627
May 31, 1946	15,949	510
June 30, 1945	24,612	672

St. Regis Sales Appointments

F. Ray Linda has joined St. Regis Paper Company's New York office as assistant to Carl H. Hartman, director of technical development and vice-president of St. Regis Sales Corporation, the St. Regis sales subsidiary. Mr. Linda is widely-known in the paper industry through many years of sales engineering and sales development work, particularly in connection with bag-filling and closing equipment, and development of variations in bag construction and closures.

The company has also opened a branch office at 202 Farr Building, Allentown, Pa., to handle the increased volume of business in its multiwall paper bag division. The new office, under the supervision of J. Lea Fearing, Jr., is strategically located in the heart of the great Lehigh Valley cement industry.

Cottonseed Meal, 1945-46

During the crop year from August 1, 1945, to July 31, 1946, the Bureau of Census reports a production of 1,433,504 tons of cottonseed meal, as compared with 1,954,111 tons in the previous year. This is only about one-half the amount produced during the banner crop year of 1937–38.

THE DAVISON CHEMICAL CORPORATION

BALTIMORE, MARYLAND

announces the acquisition of the Florida Phosphate Rock Mining Properties of the Southern Phosphate Corporation.

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President

August 1, 1946

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See Page 20

FERTILIZER CONSUMPTION IN THE UNITED STATES FOR THE YEAR ENDING JUNE 30, 1945

(Continued from page 9)

Mixtures and Materials

The consumption of commercial mixtures was 9,065,775 and of separate materials 4,400,254, making a total of 13,466,029 short tons. This was 2,000,701 tons more than was consumed during the year ended June 30, 1943, and 1,106,759 tons more than during 1944.[1] In the 1943, 1944 and 1945 fiscal years mixed fertilizers were 67.2, 69.9 and 67.3 per cent respectively, of the total consumption. The consumption of commercial mixtures and separate materials for the fall and spring seasons by states and regions is presented in Table I. Twenty-six per cent of the total for the year was shipped between July 1 and December 31, 1944. In previous years only about 20 per cent of the fiscal year total was shipped before December 31.

Grades

The number of different grades of commercial mixtures reported as sold in the Continental United States during the year ended June 30, 1945, is 271. Approximately 84 per cent of the total tonnage was represented by 24 grades. Seventy-nine grades accounted for less than 100 tons each. Table II shows the consumption and the proportion of the total for the principal grades in each region.

The four principal grades in the New England Region in 1944–45 were also the four best sellers in 1943–44, but they have changed their relative positions with respect to each other. In 1943–44, they stood in the following order: 5–7–10, 17.2 per cent; 5–10–10, 15.2 per cent; 5–8–7, 13.1 per cent; and 6–9–15, 10.70 per cent of the total for the region.

The first two grades on the list for the Middle Atlantic States have reversed their positions. The 2–12–6 grade which stood third in 1943–44 representing 16 per cent of the total sales does not appear among the first 10 this year. The sales of 5–10–10 grade increased from 10 per cent of the total in 1943–44 to 16 per cent in 1944–45.

The 3–9–6 remains the most popular grade in the South Atlantic States, but has dropped from 17.8 to 13.5 per cent of the total. The 4–10–6 came up from sixth place to second and more than doubled in tonnage. The 3–12–6 nearly tripled in tonnage. The 3–8–5 has declined further in popularity and apparently will soon disappear from lists of the principal grades.

In the North Central States the 2–12–6 is still the most popular grade but has declined from 58 per cent of the total to 53 per cent. The 3–12–12 has increased in popularity from 10.8 to 15 per cent of the total tonnage.

The principal grades in the South Central Region retain about the same relative positions as in the previous year, except that 4–10–7 has replaced 4–10–6. The 0–14–4 has disappeared from the list of principal grades and 6–8–8 has appeared in ninth place, the position formerly held by 0–14–4.

The proportion of total sales of mixed fertilizers in the Western Region represented by 8–8–4 has increased from 13.9 to 16.2 per cent since 1943–44. The 10–10–5 and 6–10–4 have shifted their relative positions.

The 2–12–6, which became the first grade in size of tonnage in the United States in 1941 by displacing 3–8–5 is still first. Its proportion of the total, however, decreased from 16.5 per cent in the 1944 season to 13.5 per cent in the

[1] A. L. Mehring and Hilda Wallace, The Am. Fert. Vol. 104, No. 12, 7–9, 28, 30 (June 15, 1946).

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1945 season. The 3–12–6 came up rapidly from ninth place with sales of 348,080 tons in 1943–44 to second with sales of 720,565 tons in 1944–45. With the exception of the Western Region, the principal grade sold in each region is also represented among the nine leading grades in the United States.

Plant Food

The consumption of nitrogen, phosphoric acid and potash is presented in Table III, by states and regions. The total consumption of plant food amounted to 2,713,077 short tons, as compared with 2,508,873 tons for 1943–44 and 2,345,319 tons for 1942–43.

Total consumption of nitrogen increased from 439,772 tons in 1942–43 to 616,982 tons in 1943–44 and to 630,279 tons in 1944–45. Consumption in 1944–45 was 2 per cent greater than in 1943–44. Most of this increase occurred in the North Central States. Outstanding examples of increases in these states are Ohio from 12,688 to 17,217, Wisconsin from 4,897 to 7,263 and Nebraska from 6 to 328 tons in 1943–44 and 1944–45, respectively. Consumption of nitrogen declined slightly in South Carolina, Georgia, Mississippi, Arkansas, Oklahoma and Colorado.

Phosphoric acid consumption increased 7 per cent as compared with the previous year. The significant increases on a state basis were all in North Central and Western States. Consumption increased in Iowa 106 per cent, from 11,299 to 23,240 tons. Some other noteworthy increases are Colorado, 69 per cent; California, 54 per cent; Illinois, 46 per cent; Idaho, 44 per cent; and Kansas, 38 per cent.

The consumption of potash increased 16.4 per cent over that of the preceding year, or more than the sum of the other two plant foods. Potash consumption, with a few unimportant exceptions, increased in every state and territory, but the increases were small in the Eastern and Southern states. They were large in the North Central and Western Regions. The increases in Iowa, Illinois and California were 93, 65 and 60 per cent, respectively. The use of potash increased 100 per cent or more in North Dakota, South Dakota, Idaho, Colorado, New Mexico, Utah and Nevada, although the tonnages involved are still small.

TABLE III
CONSUMPTION OF PLANT FOOD, BY STATES, YEAR ENDED JUNE 30, 1945

State and Region	In Mixed Fertilizers			In All Fertilizers[1]		
	Nitrogen (N)	Phosphoric Acid (P_2O_5)	Potash (K_2O)	Nitrogen (N)	Phosphoric Acid (P_2O_5)	Potash (K_2O)
	Tons	Tons	Tons	Tons	Tons	Tons
Maine	13,906	21,839	30,542	14,560	23,022	30,626
New Hampshire	834	1,644	1,493	1,170	3,850	1,798
Vermont	835	2,079	1,799	1,012	6,225	1,886
Massachusetts	3,509	5,621	5,318	4,662	8,692	5,887
Rhode Island	766	1,583	1,334	871	2,022	1,378
Connecticut	2,955	4,481	4,221	4,623	7,080	5,487
New England	22,805	37,247	44,707	26,898	50,891	47,062

[1]Includes Government distribution.

(Table III Continued on page 30)

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TABLE III—(Continued from page 28)

State and Region	In Mixed Fertilizers			In All Fertilizers[1]		
	Nitrogen (N)	Phosphoric Acid (P_2O_5)	Potash (K_2O)	Nitrogen (N)	Phosphoric Acid (P_2O_5)	Potash (K_2O)
	Tons	Tons	Tons	Tons	Tons	Tons
New York	17,263	42,219	28,799	21,353	70,168	29,714
New Jersey	10,001	25,184	19,971	11,566	27,946	20,792
Pennsylvania	13,648	48,319	29,710	14,882	68,601	30,625
Delaware	1,396	5,225	4,159	1,585	5,760	4,220
District of Columbia	49	104	59	72	141	63
Maryland	6,751	21,816	15,424	7,972	26,989	15,672
West Virginia	1,473	4,784	2,688	1,773	10,097	2,717
Middle Atlantic	50,581	147,651	100,810	59,203	209,702	103,803
Virginia	14,848	47,072	29,042	21,102	68,312	29,341
North Carolina	41,947	109,745	74,474	71,997	123,416	79,219
South Carolina	20,753	53,367	36,371	48,470	61,691	44,667
Georgia	27,490	66,214	45,972	52,549	86,366	49,870
Florida	30,878	49,591	51,920	37,102	53,811	56,312
South Atlantic	135,916	325,989	237,779	231,220	393,596	259,409
Ohio	13,506	76,653	46,024	17,217	82,440	46,190
Indiana	8,249	54,305	45,296	9,139	60,087	46,265
Illinois	2,947	17,795	15,559	4,103	34,239	18,038
Michigan	6,130	35,263	24,197	8,035	40,856	24,411
Wisconsin	3,831	23,801	20,019	7,263	30,622	21,981
East North Central	34,663	207,817	151,095	45,757	248,244	156,885
Minnesota	1,406	7,829	6,064	1,500	16,434	6,082
Iowa	1,194	9,534	7,368	1,337	23,240	7,517
Missouri	1,977	10,092	6,130	2,373	27,507	6,761
North Dakota	80	560	379	88	1,492	379
South Dakota	6	38	22	6	98	22
Nebraska	8	106	4	328	918	4
Kansas	197	972	449	243	11,135	466
West North Central	4,908	29,131	20,416	5,875	80,824	21,231
Kentucky	5,779	20,192	11,554	7,858	45,543	11,638
Tennessee	5,727	20,128	11,842	11,620	45,473	13,254
Alabama	22,870	46,922	28,557	46,269	78,038	30,964
Mississippi	11,747	18,754	13,188	47,389	34,682	14,993
Arkansas	3,527	7,151	5,607	9,689	15,249	9,892
Louisiana	4,792	11,002	5,313	18,438	16,775	6,215
Oklahoma	480	1,308	536	527	2,847	537
Texas	7,853	16,991	6,535	12,763	26,964	6,731
South Central	62,775	142,448	83,132	154,553	265,571	94,224
Montana	90	327	2	210	3,625	2
Idaho	350	979	118	1,336	9,325	416
Wyoming	8	16	0	8	1,241	1
Colorado	255	690	148	278	4,781	148
New Mexico	62	154	61	64	3,067	61
Arizona	582	1,073	14	2,397	3,346	345
Utah	30	101	16	374	3,277	40
Nevada	32	67	14	39	68	14
Washington	1,784	3,365	2,178	5,245	10,944	2,865
Oregon	1,027	2,045	1,298	3,613	7,080	1,570
California	18,852	20,828	11,808	58,243	42,480	16,056
Western	23,072	29,645	15,657	71,807	89,234	21,518
Hawaii	4,565	3,163	5,914	14,269	5,321	9,458
Puerto Rico	15,497	10,188	15,559	20,697	10,264	15,561
Territories	20,062	13,351	21,473	34,966	15,585	25,019
Continental United States	334,720	919,928	653,596	595,313	1,338,062	704,132
Total	354,782	933,279	675,069	630,279	1,353,647	729,151

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Sackett & Sons Co., The A. J., Baltimore, Md.

ENGINEERS—Chemical and Industrial
Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind

FERTILIZER (Mixed) MANUFACTURERS
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Davison Chemical Corporation, Baltimore, Md.
International Minerals and Chemical Corporation, Chicago, Ill
Virginia-Carolina Chemical Corp., Richmond, Va.

FISH SCRAP AND OIL
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
McIver & Son, Alex. M., Charleston. S. C.
Scar-Lipman & Co., Inc., Irvington, N. J.

FOUNDERS AND MACHINISTS
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind
Utility Works, The, East Point, Ga.

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Utility Works, The, East Point, Ga.

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Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga
Baker & Bro., H. J., New York City
Bradley & Baker, New York City.
Scar-Lipman & Co., Inc., Irvington, N. J.

INSECTICIDES
American Agricultural Chemical Co., New York City.
McLaughlin Gormley King Co., Minneapolis, Minn.

LIMESTONE
American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C
Scar-Lipman & Co., Inc., Irvington, N. J.

LOADERS—Car and Wagon
Hough Co., The Frank G., Libertyville, Ill.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Acid Making and Handling
Chemical Construction Corp., New York City.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

MACHINERY—Ammoniating
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Elevating and Conveying
Hough Co., The Frank G., Libertyville, Ill.
Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

MACHINERY—Grinding and Pulverizing
Bradley Pulverizer Co., Allentown, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind
Utility Works, The, East Point, Ga.

MACHINERY—Material Handling
Hayward Company, The, New York City.
Hough Co., The Frank G., Libertyville, Ill.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

MACHINERY—Mixing, Screening and Bagging
Exact Weight Scale Co., Columbus, Ohio
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

MACHINERY—Power Transmission
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Superphosphate Manufacturing
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

MANGANESE SULPHATE
McIver & Son, Alex. M., Charleston, S. C.
Tennessee Corporation, Atlanta, Ga.

MIXERS
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind
Utility Works, The, East Point, Ga.

NITRATE OF SODA
American Agricultural Chemical Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City
Bradley & Baker, New York City.
Huber & Company, New York City.

NITRATE OF SODA—Continued
International Minerals & Chemical Corporation, Chicago, Ill
McIver & Son, Alex. M., Charleston, S. C
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.

NITROGENOUS ORGANIC MATERIAL
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Scar-Lipman & Co., Inc., Irvington, N. J

NOZZLES—Spray
Monarch Mfg. Works, Philadelphia, Pa.

PHOSPHATE ROCK
American Agricultural Chemical Co. New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City
Davison Chemical Corporation, Baltimore, Md.
Huber & Company, New York City
International Minerals & Chemical Corporation, Chicago, Ill
McIver & Son, Alex. M., Charleston, S. C.
Ruhm, H. D., Mount Pleasant, Tenn.
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.
Virginia-Carolina Chemical Corp., Richmond, Va.

PLANT CONSTRUCTION—Fertilizer and Acid
Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.
Utility Works, The, East Point, Ga.

POTASH SALTS—Dealers and Brokers
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.

POTASH SALTS—Manufacturers
American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

PRINTING PRESSES—Bag
Schmutz Mfg. Co., Louisville, Ky.

PYRITES—Brokers
Ashcraft-Wilkinson Co., Atlanta, Ga.

REPAIR PARTS AND CASTINGS
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind
Utility Works, The, East Point, Ga.

ROUGH AMMONIATES
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.

SCALES—Including Automatic Bagging
Exact Weight Scale Co., Columbus, Ohio
Sackett & Sons Co., The A. J., Baltimore, Md.
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Utility Works, The, East Point, Ga.

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SEPARATORS—Air
Sackett & Sons Co., The A. J., Baltimore, Md.

SPRAYS—Acid Chambers
Monarch Mfg. Works, Inc., Philadelphia, Pa.

SULPHATE OF AMMONIA
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Hydrocarbon Products Co., New York City.
McIver & Son, Alex. M., Charleston, S. C
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.

SULPHUR
Ashcraft-Wilkinson Co., Atlanta, Ga.
Texas Gulf Sulphur Co., New York City.
Virginia-Carolina Chemicrl Corp., Richmond, Va.

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American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
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Scar-Lipman & Co., Inc., Irvington, N. J.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

SUPERPHOSPHATE
American Agricultural Chemical Co., New York City.
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Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Davison Chemical Corporation, Baltimore, Md.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Virginia-Carolina Chemical Corp., Richmond, Va.

SUPERPHOSPHATE—Concentrated
Armour Fertilizer Works, Atlanta, Ga.
International Minerals & Chemical Corporation, Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Virginia-Carolina Chemical Corp., Richmond, Va.

TANKAGE
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.

UREA
DuPont de Nemours & Co., E. I., Wilmington, Del.

UREA-AMMONIA LIQUOR
DuPont de Nemours & Co., E. I., Wilmington, Del.

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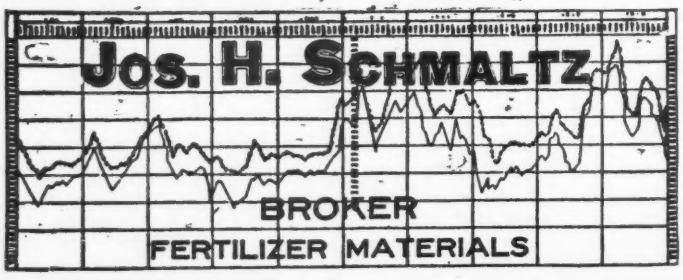

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